

2015-1785, -1787

**IN THE
UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

5TH MARKET, INC.,

Appellant,

v.

CHICAGO MERCANTILE EXCHANGE, INC.,

Cross-Appellant.

**Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in Case No. CBM2013-00027**

**BRIEF FOR CROSS-APPELLANT
CHICAGO MERCANTILE EXCHANGE, INC.**

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CERTIFICATE OF INTEREST

Counsel for Chicago Mercantile Exchange, Inc., certify the following:

1. The full name of every party or amicus represented by me is:

Chicago Mercantile Exchange, Inc.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

N/A

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

CME Group, Inc.

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this Court are:

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STATEMENT OF RELATED CASES

No other appeal in or from the same proceeding in the U.S. Patent and Trademark Office (“USPTO”) was previously before this or any other appellate court.

5th Market, Inc., brought an action against Chicago Mercantile Exchange, Inc. (“CME”), before the U.S. District Court for the District of Delaware (Civil Action No. 08-0520 GMS), for allegedly infringing the patent-in-suit, U.S. Patent No. 6,418,419 (“the ’419 patent”), and U.S. Patent No. 7,024,387 (“the ’387 patent”), which is a continuation-in-part of the ’419 patent.

Two *ex parte* reexaminations (Control Nos. 90/011,603 and 90/011,618) were previously filed challenging the validity of the ’419 patent, which resulted in cancelation of claims 24-40, amendment of the other claims, and the addition of new claims 44-49. CME filed an *inter partes* reexamination challenging the validity of the related ’387 patent that resulted in cancelation of claims 3, 5, 7, 9, 11, and 12 of that patent. 5th Market did not appeal from the USPTO’s decisions in any of these reexamination proceedings.

CME also filed, and the USPTO’s Patent Trial and Appeal Board (“Board”) instituted, two petitions for covered business method review of the ’387 patent: CBM2014-00114 and CBM2015-00061. After the Board canceled claims 4, 6-8,

and 10 of the '387 patent in CBM2014-00114, 5th Market filed a Notice of Appeal to this Court on September 22, 2015 (docketed November 2, 2015).

STATEMENT OF JURISDICTION

The Board had jurisdiction over CME's Petition for Post-Grant Review under 35 U.S.C. § 321 and the Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 18, 125 Stat. 284, 329-31 (2011). This Court has jurisdiction to review the Board's Final Written Decision, entered on December 17, 2014, and Decision Granting-in-part Patent Owner's Request for Rehearing, entered on March 23, 2015, under 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. § 329.

I. COUNTERSTATEMENT OF THE ISSUES

1. Can 5th Market challenge the Board's Final Written Decision by raising for the first time on appeal the issue of whether the CFTC prior art reference is a "printed publication"?

2. Did the Board err by confirming the patentability of 5th Market's proposed substitute claim 54, where the Board failed to assess the patentability of new claim 54 over the prior art of record and where claim 54 impermissibly broadens the scope of the claim it replaces?

II. STATEMENT OF THE CASE

This covered business method ("CBM") appeal presents only two issues. In its Opening Brief, 5th Market presents a single argument that it never raised before the Board, asserting that the primary prior art reference the Board relied on in canceling the '419 patent claims is not a "printed publication." 5th Market forfeited this argument by failing to raise it before the Board. 5th Market's Opening Brief makes no other argument on the substantive aspects of the Board's § 103 and § 112, ¶ 2, rejections. The second issue in this appeal is CME's challenge to the Board's decision confirming one proposed substitute claim. This was error because the Board never analyzed the patentability of the new claim in view of all of the prior art of record, in violation of the Board's own rules and, moreover, because this claim improperly broadens the scope of the claim it replaces.

A. It Is Improper for 5th Market To Raise a New Argument for the First Time on Appeal Concerning Whether the CFTC Reference Is a “Printed Publication”

Contrary to 5th Market’s assertion in its Statement of the Case, this appeal does not turn on, *or even involve*, the issue of whether the CFTC prior art reference¹ applied by the Board is a printed publication. 5th Market could have raised this argument before the Board, but it chose not to do so. Instead, 5th Market consistently admitted in this proceeding and in others involving the ’419 patent that the CFTC reference is prior art. This Court should not permit 5th Market to raise its “printed publication” argument for the first time on appeal.

Even if the Court were to consider 5th Market’s forfeited argument, it should affirm the Board’s decision canceling claims based on the CFTC reference. CME made the required showing that the CFTC reference is a printed publication and thus constitutes § 102 prior art. CME’s Petition relied on the reference as prior art and noted its publication date of December 7, 1992. CME also filed a copy of the CFTC reference, which on its face bears multiple indications that it was published and publicly available long before the ’419 patent was filed in 1999. For example, the front page includes two markings: the first reads “PUBLIC COPY December 7, 1992,” while the second reads “COMMODITY FUTURES TRADING COMMISSION RECEIVED FOR PUBLIC RECORD” and lists the date

¹ *New York Mercantile Exchange’s Proposal to Implement the NYMEX ACCESS Trading System* (Dec. 7, 1992) (“the CFTC reference,” JA1715-816).

“Dec 18 320 PM '92.” JA1715. The Board correctly instituted CBM review based on the CFTC reference.

5th Market’s Opening Brief omits the fact that, in another CBM proceeding involving the continuation-in-part ’387 patent, the Board rejected 5th Market’s “printed publication” argument on the CFTC reference. The Board noted in that proceeding that 5th Market had failed to challenge the CFTC reference’s status as prior art in multiple reexaminations and in the CBM review at issue in the present appeal. The Board in the ’387 patent CBM further noted that *5th Market itself* introduced a declaration from a paralegal working for the U.S. Commodity Futures Trading Commission, who confirmed that the CFTC reference was made publicly available as of December 18, 1992, or within a few days thereafter. In that related CBM proceeding, the Board concluded that 5th Market’s own evidence confirmed that the CFTC reference was publicly available as of the date on its cover and rejected 5th Market’s “printed publication” challenge. If the Court considers 5th Market’s argument in this appeal, it should affirm the Board’s decision for the same reasons.

Because 5th Market challenges only whether the CFTC reference is a “printed publication,” and does not substantively address the Board’s obviousness or indefiniteness rejections, 5th Market has waived any arguments on those rejections. Accordingly, the Court should affirm the Board’s decision canceling all

the original claims of the '419 patent and denying 5th Market's Motion to Amend as to proposed substitute claims 50-53 and 55-72.

B. The Board Erred in Confirming Proposed Substitute Claim 54

The Board initially denied 5th Market's Motion to Amend as to all proposed claims, but on rehearing revised its decision and confirmed one substitute claim (claim 54). The Board erred, however, by confirming substitute claim 54 without assessing its patentability over the prior art in general or even the prior art of record, as required by the Board's own regulations. The Board reasoned that, because the original claim on which substitute claim 54 is based was canceled only under § 112 and because claim 54 was supposedly narrower than the original claim, 5th Market did not need to show that claim 54 is patentable over the prior art.

This reasoning is contrary to the Board's own guidance in *Idle Free Systems, Inc. v. Bergstrom, Inc.*, which states that a proposed substitute claim must be compared both to the prior art of record and to prior art known to the patent owner, even if not of record. IPR2012-00027, 2013 WL 5947697, at *4 (PTAB June 11, 2013). The Board's policy on amendment is rooted in the fact that, unlike in reexamination, amended claims confirmed in a post-grant review are added to the patent without further examination. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1307-08 (Fed. Cir. 2015).

Here, far from assessing whether claim 54 is patentable over the prior art in general, as required under *Idle Free*, the Board failed even to assess whether claim 54 is patentable over the prior art *of record in this proceeding*. Indeed, the Board failed to consider patentability over prior art combinations that CME asserted in its Petition, but which the Board declined to institute based only on supposed redundancy with other proposed grounds of unpatentability. The Board also failed to consider patentability over other prior art of record cited in reexaminations of the '419 patent and during original prosecution.

The Board's justification for failing to assess the patentability of proposed substitute claim 54 over the prior art is that claim 54 is allegedly narrower than the claim it replaces. The Board is wrong. The original claim recited a system comprising a "means for matching or comparing," and thus requires the system to be able to operate in either of two modes—a mode in which it matches and a mode in which it compares. Substitute claim 54 instead recites only a "means for matching," deleting the "or comparing" limitation. The Board erroneously concluded that, because this amendment deletes claim language from the original claim 5, claim 54 must be narrower. Deleting limitations from a claim, however, usually broadens the claim. Indeed, claim 54 actually requires less than the original claim 5 because the new system claim 54 covers no longer needs to be able to select between two different modes of operation. Accordingly, claim 54 is actually

broader than the claim it replaced and the Board erred by confirming claim 54. Based on these errors, the Court should reverse the Board's decision confirming substitute claim 54.

III. STATEMENT OF THE FACTS

A. The '419 Patent

The '419 patent is generally directed to the idea of matching up conditional buy and sell orders for securities by multiple traders. JA135[2:3-5]. It claims an electronic system that uses an algorithm to perform conditional trading of securities based on certain constraints, such as price data from an external price feed. JA147[1:26-61]. The '419 patent explains that such transactions previously had been performed through “verbal private negotiations,” but there was “no computer network actively linking [the various] participants in a transaction-oriented format.” JA135[1:32-36]. The '419 patent thus allegedly supplants verbal conditional trade transactions by merely implementing them on a computer.

According to the '419 patent specification, “a primary object of the present invention is to efficiently transact conditional buy and sell orders for items of commerce by multiple traders in real-time.” JA135[2:3-5]. To this end, the claimed system is designed “to provide matching or comparing in accordance with constraints and conditions, algorithmic buy/sell orders with non-algorithmic sell/buy orders through the use of data from, and interaction with, multiple external

exchanges.” JA135[2:13-17]. It provides a “conditional order transaction network that matches or compares buy and sell orders for a plurality of items based upon conditions set forth within the order, including the price represented as an algorithm with constraints thereon.” JA135[2:27-32]. The ’419 patent explains:

A subscriber can submit a conditional offer to buy/sell. This conditional buy/sell offer is immediately conveyed to all subscribers i.e., there is instant exposure to the market. Other subscribers can accept or counter the offer, with the acceptance or the counter offer being communicated immediately to the original offeror and/or the other subscribers to the system.

JA136[3:15-21].

B. The Claims at Issue

The ’419 patent claims reflect amendments and cancelations during two *ex parte* reexaminations (Control Nos. 90/011,603 and 90/011,618), which were merged into a single proceeding (“the ’419 Reexaminations”). JA1006-07. During reexamination, the USPTO initially rejected every claim of the ’419 patent as being anticipated by or obvious over the CFTC reference, alone or in combination with other prior art references. JA1264-94.

5th Market argued during reexamination that the CFTC prior art reference failed to disclose the limitation of “at least one external price feed depicting prices of various securities and contracts from external multiple exchanges which may be used as an independent variable of the algorithm or an input to a constraint variable.” JA1428. This “external price feed” limitation already appeared in claims

1-23, and 5th Market amended all of the other claims to include it.² JA1418-26. Similarly, 5th Market drafted new claims 44-49 to include the “external price feed” limitation. JA1426-27. Notably, at no point during this reexamination did 5th Market contend that the CFTC reference was not prior art to the ’419 patent.

The USPTO agreed that the CFTC reference does not disclose the “external price feed” limitation now present in all the claims, and thus allowed claims 1-23 and 41-49. JA1561-62. The reexamination did not involve U.S. Patent No. 5,101,353 (“Lupien”), which the Board applied in this CBM proceeding for its teaching of the “external price feed” limitation, combined with the CFTC reference.

Claims 1-23 and 41-49, as amended during reexamination, are the subject of the current CBM proceeding. JA2. The Board identified independent claims 1 and 41 of the ’419 patent as representative. JA7-9. Both claims recite a “conditional order transaction network” that uses an algorithm to make conditional trades of securities. *Id.* Both claims also require that the network must have “at least one external price feed” that depicts prices of securities from an external network. *Id.*

Claim 1 recites a “conditional order transaction network” that “matches or compares buy and sell orders for a plurality of security instruments” based on certain conditions, including price. JA147. The system in claim 1 includes a

² 5th Market canceled claims 24-40. JA1423.

means-plus-function term—“means for matching or comparing”—and thus requires disclosure of structure in the specification to accomplish the recited function of “matching or comparing.” *Id.*

Claim 1 recites:

1. **A conditional order transaction network that matches or compares buy and sell orders** for a plurality of security instruments based upon conditions set forth within the order, including price represented as an algorithm with constraints thereon, the transaction network comprising:

a variable number of trader terminals for entering an order for a security instrument in a form of an algorithm with constraints thereon that represent a willingness to transact, where price of one security is a dependent variable of the algorithm within the constraints and dynamically changing price of another security is an independent variable thereof, the price as the dependent variable being continuously changeable responsive to changes in price of the independent variable, the algorithm representing a buy or sell order; and

at least one controller computer coupled to each of the variable number of trader terminals over a communications network and receiving as inputs,

a) each algorithm with its corresponding constraints, and

b) **at least one external price feed depicting prices of various securities and contracts from external multiple exchanges** which may be used as an independent variable of the algorithm or an input to a constraint variable, the controller computer comprising, means for matching, in accordance with the constraints and the conditions, algorithmic buy orders with algorithmic sell orders, one of the conditions being a

requirement that two or more securities are tradable contemporaneously as a contingent trade of those respective securities, and

means for matching or comparing, in accordance with the constraints and the conditions, algorithmic buy/sell orders with algorithmic or non-algorithmic sell/buy orders through use of the external multiple data sources.

Id. (emphases added) (bracketed text and italics omitted).

Claims 2-23 are dependent claims that further limit the “conditional order transaction network” recited in claim 1. Claim 5, for example, which was the basis for 5th Market’s proposed substitute claim 54, recites a “conditional order transaction network . . . wherein the price is a yield spread.” *Id.*

Independent claim 41 also recites a “conditional order transaction network.” JA148. But where the network recited in claim 1 “matches or compares buy and sell orders,” the network in claim 41 only “matches buy and sell orders.” *Id.* Similarly, claim 41 requires a “means for matching” rather than a “means for matching or comparing.” *Id.*

Claim 41 recites:

41. **A conditional order transaction network that matches buy and sell orders** for a plurality of items based upon conditions set forth within an order for an item, including price represented as an algorithm with constraints thereon, the conditional order transaction network comprising:

a variable number of trader terminals for entering the order for a traded item being an option in a form of an

algorithm with constraints thereon that represent a willingness to transact, where price of the traded item is a dependent variable of the algorithm within the constraints and dynamically changing price of another item is an independent variable thereof, the price of the traded item as the dependent variable being continuously changeable responsive to changes in price of the another item as the independent variable, the algorithm representing a buy or sell order for said traded item;

controller computer means coupled to each of the variable number of trader terminals over a communications network and receiving as inputs each algorithm with its corresponding constraints, and **at least one external price feed depicting at least one price of at least one item from at least one external network** which is used as either the independent variable of the algorithm or an input to a constraint variable; and

means for matching, in accordance with the constraints and the conditions, through use of the at least one external price feed from the at least one external network, at least one of algorithmic or non-algorithmic buy orders with algorithmic sell orders, and non-algorithmic buy orders with algorithmic sell orders, one of the conditions being a requirement that two or more securities are tradable contemporaneously as a contingent trade of those respective securities responsive to changes in price of said another item as the independent variable.

Id. (emphases added) (bracketed text and italics omitted).

C. The Asserted Prior Art References

1. The CFTC Reference

The Board based its obviousness rejections on prior art combinations that all included the CFTC reference. As the Board found, the CFTC reference discloses

proposed rules necessary to implement a computerized commodity exchange system for the New York Mercantile Exchange, titled “NYMEX ACCESS.” JA25-26.

The CFTC reference discloses that the NYMEX ACCESS system is an “electronic order matching system which would be used by NYMEX members and customers trading through NYMEX members to trade in certain of the Exchange’s futures and options contracts after the Exchange’s regular trading hours.” JA1720. The CFTC reference further teaches that “terminal operators would enter orders into the system by means of a Trader Work Station,” and that “[o]rders would be routed to a trade matching host for execution based on an algorithm.” JA1721.

The system disclosed in the CFTC reference is designed to accept several different types of orders, including conditional buy and sell orders, limit orders, and spread orders. For example, the CFTC reference teaches that the trade matching host “is designed to accept limit orders, i.e., orders to buy or sell a particular number of futures or option contracts in a given commodity and month at a specified price.” JA1736.

The CFTC reference also states that the trade matching host is designed to accept “spread orders entered at a differential.” *Id.* These “spread orders” include so-called “Inter-month Spread Trading,” where, for example, a trader may wish to purchase a contract in a commodity in one month and sell a contract in the

commodity in another month. *See* JA1745. The “spread orders” disclosed in the CFTC reference may also include “inter-commodity spread trading,” in which an order is entered to buy or sell futures contracts of one commodity while simultaneously buying or selling a number of futures contracts of another commodity. *See* JA1750. The Board thus found that the CFTC reference “discloses at least one example where the price of one security is dependent on the price of another security being traded.” JA26.

As the Board found, the CFTC reference also discloses generating conditional bids and offers. JA27 (citing JA1745-46). The CFTC reference teaches, for example, that, under certain conditions, the system would attempt to execute a spread order “by placing conditional bids and offers (marked with asterisks) in the underlying futures markets.” JA1745-46. The CFTC reference further teaches that “[t]hese conditional bids and offers, which would be placed only if they bettered the best bids and offers in the market, would adjust as the underlying markets moved.” JA1746. The CFTC reference also discloses that, “[w]hen a conditional bid or offer was taken, the system immediately would complete the transaction by buying or selling a corresponding number of contracts in the second leg of the spread.” *Id.*

2. Lupien (U.S. Patent No. 5,101,353)

The Board's obviousness rejections combine the CFTC reference with U.S. Patent No. 5,101,353 ("Lupien"), some with additional references. Lupien discloses an "automated securities trading and portfolio management system for use by investment managers." JA1827[2:60-62]. The system disclosed in Lupien "monitors security trades, price and size quotations and various portfolio characteristics as well as other factors in real time." JA1828[3:7-9]. Lupien discloses that, "[i]n response to this monitoring process the system enters, alters or cancels buy and sell orders and/or sets thereof through its own network, other networks and/or with computerized brokers and/or computerized stock exchanges." JA1828[3:9-14].

Lupien's system uses "real time analysis of the data" to track how close each security, sector, and portfolio is to certain limits set by the client. JA1828[3:28-31]. "To the extent that the limits have not been reached, the [system] will issue buy and/or sell orders as a function thereof as well as the security's volatility, current price and recent price history." JA1828[3:31-34]. The resulting orders are broadcast to other market participants logged into the computer program. JA1828[3:37-42]. Lupien teaches that, "[a]s orders are executed, market quotes change or trades occur in the markets, the system which represents the present

invention will update market data, portfolio holdings, including cash, and recalculate purchase and sale orders in all relevant securities.” JA1828[4:32-36].

Lupien states that the “heart of the system” is the controller central processing unit (CPU), which “executes trades and manages orders and portfolios.” JA1829[5:67-6:3]. The controller CPU “acts partially as an order matching device to bring buyers and sellers together.” JA1829[6:4-6]. The controller CPU also “collects and stores data on [a] disc . . . in the form of transaction reports from various securities markets as well as the flow of price quotations made by participants in those markets made available through a service such as a securities information vendor.” JA1829[6:6-11].

The controller CPU periodically disseminates relevant portions of this internal data to storage devices for each client. JA1829[6:15-20]. Each client can have its own computer terminal CPU, which is connected to the storage device and to the controller CPU. JA1829[6:26-30]. Algorithms that operate either at each client CPU or at the controller CPU, and which are customized for each client, analyze the data in the client storage device so as to create buy and sell orders for that client. JA1829[6:37-40].

Significantly, the Board found that Lupien teaches that external data are available to clients from securities information vendors, and that these data may include quote and trade feeds covering current external quotes, trades, and other

market data. JA27. In other words, Lupien discloses use of an external price feed. Lupien teaches, for example, that “[e]xternal market data is available to clients from securities information vendors.” JA1829[6:20-22]. Lupien further discloses that this external data may include “external quotes, trades and other market data.” JA1831[9:48-54].

3. Other Prior Art of Record

In addition to the CFTC reference and the Lupien patent, CME’s Petition also asserted grounds of unpatentability based on several other prior art references, including the Miller³ and Wilson⁴ references. CME asserted that original claim 5 would have been obvious over the combination of the CFTC reference, Miller, and Wilson or, alternatively, over the combination of the CFTC reference, Lupien, and Wilson. JA224-25. Wilson discloses a “comprehensive transaction system[]” called BondNet, which allows a trader to trade on price, yield, or spreads. JA1845. Wilson thus teaches the limitation recited in claim 5 of the ’419 patent that “the price is a yield spread,” which simply refers to the well-known concept of a difference (or spread) between the yields of two different securities.

³ Ross M. Miller, *The Design of Decentralized Auction Mechanisms that Coordinate Continuous Trade in Synthetic Securities*, J. Econ. Dynamics & Control, May 1990 (“Miller”).

⁴ Richard S. Wilson & Frank J. Fabozzi, *Corporate Bonds Structures & Analysis* (1996) (“Wilson”) (JA1836-45).

Miller discloses using an external price feed in a trading system that can process complex orders containing one or more contingencies. JA179. The system disclosed in Miller is designed to handle so-called synthetic securities, which are securities that are “not traded directly on any market, but rather [are] implicitly created when two or more component securities are held simultaneously. Each component security is traded in its own market.” *Id.* (citation omitted).

According to Miller, the system can handle an inter-market synthetic order, i.e., an order for multiple securities traded on different markets. *Id.* Miller describes “a network of auctions that work together through communications links to create ‘virtual markets’ for synthetic securities.” JA183 (citation omitted). Miller also teaches that the system “allow[s] trade in synthetics that have components traded in two separate auction markets.” JA179 (citation omitted). Miller thus teaches use of external price data and meets the “external price feed” limitation of the ’419 patent claims.

D. CME’s Petition and the Board’s Institution Decision

CME’s Petition for covered business method (“CBM”) review of the ’419 patent argued that the claims were (1) indefinite under 35 U.S.C. § 112, ¶ 2, for failing to disclose corresponding structure for two means-plus-function limitations; (2) patent ineligible under 35 U.S.C. § 101; and (3) unpatentable as obvious over various prior art combinations. JA155.

1. Indefiniteness Under § 112, ¶ 2

With respect to § 112, CME argued that the claims are indefinite because the specification fails to disclose algorithm support for the terms “means for matching or comparing” in claims 1-23 and “means for matching” in claims 41-49. JA169; JA171-72. CME noted that, besides the claims themselves and the “Summary of the Invention” section, the ’419 patent does not use the words “compare” or “comparing,” let alone disclose an algorithm for performing the “matching or comparing” function. JA171.

In its Institution Decision, the Board construed the two means-plus-function limitations. JA89-94. The Board concluded that the “means for matching or comparing” limitation recited alternative functions that could be performed by distinct structures, and thus separately construed “means for matching” and “means for comparing.” JA92. The Board thus rejected 5th Market’s assertion in its Preliminary Response that the Board should construe the “means for matching *and* comparing [sic]” as “a computer that matches *and* compares trade data.” JA257 (emphases added).

The Board concluded that “the ’419 patent does not disclose sufficient structure for performing the recited function of ‘comparing,’” and thus concluded that it is “more likely than not” that the claims that recite “means for matching or comparing” (claims 1-23) are indefinite under § 112, ¶ 2. JA102-03. The Board

found that the '419 patent specification disclosed an algorithm corresponding to the “means for matching” terms (claims 41-49). JA90-91; JA101.

2. Patent Ineligibility Under § 101

CME argued that the '419 patent claims are patent ineligible under § 101 because they are directed to the abstract idea of determining a price using external data sources, and fail to add anything to this idea beyond “well-understood, routine, conventional activity.” JA174-75 (citation omitted). Specifically, CME noted that the alleged invention of the '419 patent was to implement a known idea on a “global computer network.” JA175 (citing JA135[1:32-33]; JA136[3:3-10]).

The Board, relying on the now-vacated opinion in *Ultramercial, Inc. v. Hulu, LLC*, held it was not more likely than not that the claims are directed to nonstatutory subject matter under § 101. JA116-17 (citing 722 F.3d 1335 (Fed. Cir. 2013), *vacated sub nom. WildTangent, Inc. v. Ultramercial, LLC*, 134 S. Ct. 2870 (2014)). The Board reasoned that, as in *Ultramercial*, the various computer elements recited in the '419 patent claims, including the algorithm used on the general purpose computer, are integral to the performance of the claimed systems and meaningfully limit the claims. JA113-17. Accordingly, the Board declined to institute CBM review of the claims under § 101.

3. Obviousness

CME's Petition also raised several obviousness challenges based on prior art combinations that included the CFTC reference, many of which also included either Lupien or Miller. JA178-234. CME filed a publicly available copy of the CFTC reference with its Petition (JA1715-816), and the Board relied on the CFTC reference as prior art in its Institution Decision (JA105-06). The same copy of the CFTC reference was also filed in the prior reexamination. The CFTC reference bears on its face a stamp that reads "PUBLIC COPY December 7, 1992." JA1715. The document also bears a separate date stamp that reads "COMMODITY FUTURES TRADING COMMISSION RECEIVED FOR PUBLIC RECORD Dec 18 320 PM '92." *Id.*

In its Preliminary Response, 5th Market argued that the Board should not consider the CFTC reference because the USPTO had already considered it as prior art in the *ex parte* reexaminations of the '419 patent. JA283-84. Throughout the reexaminations, 5th Market never questioned whether the CFTC reference is prior art under 35 U.S.C. § 102 or whether the CFTC reference is a "printed publication."

The Board concluded that it was "more likely than not" that independent claims 1, 41, and 43 would have been obvious over the combination of the CFTC reference and Lupien. JA110. The Board further concluded that all of the

dependent claims would have been obvious over the combination of the CFTC reference and Lupien or the other prior art combinations CME set out in its Petition. JA110-11. The Board declined to institute on several grounds that it concluded were redundant in light of the already instituted grounds. JA118. For example, the Board declined to institute review of claims 3 and 5 based on the combination of the CFTC reference, Miller, and Wilson. *Id.*

E. The Board's Final Written Decision

In its Final Written Decision, the Board held that every claim of the '419 patent remaining after the reexaminations is invalid as indefinite or obvious over the prior art, or both. JA55-56. The Board also held that 5th Market failed to meet its burden of demonstrating that proposed substitute claims 50-72 are patentable over the prior art of record, as required by its decision in *Idle Free v. Bergstrom*, and thus denied 5th Market's Motion to Amend. JA52-53 (citing *Idle Free*, 2013 WL 5947697, at *4); *see also* JA55.

1. Cancellation of All Challenged Claims

The Board held that claims 1-23 are indefinite under § 112, ¶ 2, because the specification does not provide support for the “means for matching or comparing” limitation. JA20-22. The Board confirmed its construction of this limitation as reciting “two alternative functions that should be addressed separately.” JA16. The Board held that the specification does not provide an algorithm to perform the

function of “comparing.” JA21. The Board explained that the specification lacked any disclosure regarding how conditions listed in the ’419 patent could be used to compare orders. *Id.* The Board thus held that CME demonstrated that claims 1-23 are indefinite. JA21-22.

The Board canceled claims 1-4, 6-23, and 41-49, holding that they would have been obvious over the prior art. JA55-56. Each obviousness combination relied on the CFTC reference as the primary reference. JA56. The Board rejected 5th Market’s arguments regarding the combination of the CFTC reference and Lupien because the arguments were merely “directed to the separate teachings” of the references, rather than to the combination as a whole. JA30. The Board found that the combination of the CFTC reference and Lupien teaches all of the required limitations, including the use of an “external price feed.” JA32. The Board also concluded that it would have been obvious to modify the system taught in the CFTC reference based on Lupien to use external market data to calculate and match purchase and sale orders (JA34), and that doing so would not render the CFTC reference inoperable for its intended use (JA35-41). The Board thus held that independent claims 1, 41, and 43 are invalid over the CFTC reference and Lupien. JA44.

The Board noted that 5th Market did not present any separate arguments for dependent claims 2-4, 6-14, 16-23, and 42. *Id.* The Board therefore concluded that

CME's Petition "presents sufficient evidence to support a finding that the cited prior art references teach the claimed subject matter recited in each of these dependent claims." *Id.* The Board thus held that these claims are also invalid over the combination of the CFTC reference and Lupien, or over combinations of the CFTC reference, Lupien, and other references. JA44-45. The Board also canceled dependent claims 15 and 44-49, holding that they would have been obvious over the combination of the CFTC reference and Lupien. JA47-50.

Although the Board held that dependent claim 5 is unpatentable under § 112, it did not hold that claim 5 was unpatentable over the prior art references on which the Board instituted CBM review. JA45-47. In particular, the Board found that the combination of the CFTC reference, Lupien, and Wilson does not teach the limitation "wherein the price is a yield spread." JA45-47. The Board rejected CME's argument that Wilson teaches a "yield spread" (JA46) based on its disclosure of a system that can "[t]rade on Price, *Yield, or Spreads*" (JA1845 (emphasis added)). The Board declined to credit testimony by CME's expert, Dr. Pirrong, that Wilson teaches a "yield spread" within the meaning of the '419 patent claims. JA46 (citing JA1688-89, ¶¶ 126-27). Dr. Pirrong stated in his declaration that he agreed with the USPTO's previous decision during *ex parte* reexamination that Wilson taught a "yield spread," and thus that the combination of the CFTC reference, Lupien, and Wilson teaches every limitation of claim 5. JA1689, ¶¶ 127-

28. Dr. Pirrong's conclusion mirrors the USPTO's determination during the '419 Reexaminations that Wilson teaches the "yield spread" limitation. *See* JA1285 ("Wilson's BondNet and CFTC's NYMEX are both trading systems offering similar functions. It therefore would have been obvious to have provided trading based upon yield spread with that of CFTC.").

2. Denial of 5th Market's Motion to Amend

In its Contingent Motion to Amend, 5th Market sought to substitute claims 50-72 for original claims 1-23. JA50 (citing JA435-36). With these proposed substitute claims, 5th Market sought to overcome the Board's indefiniteness rejections by replacing the "means for matching or comparing" limitation with "means for matching" (i.e., removing the "or comparing" limitation). JA51-52 (citing JA497-98).

The Board held that 5th Market failed to meet its burden to establish that the proposed new claims are patentable over the prior art of record and prior art in general, as required by the Board's *Idle Free* decision. JA52-54. The Board noted that 5th Market failed in its Motion to Amend to explain why the substitute claims are patentable over the prior art. JA54. The Board rejected 5th Market's contention that it only needed to overcome the indefiniteness rejections under § 112, ¶ 2, and could then rely on arguments about the validity of the original claims presented in its Patent Owner Response to overcome the prior art. JA53-55. The Board

explained that, even if 5th Market's substitute claims allegedly address the Board's § 112, ¶ 2, rejections by removing the "or comparing" language, they would nonetheless fail to overcome the Board's prior art rejections because the combination of the CFTC reference and Lupien still teaches every claim limitation.⁵ JA54. The Board thus denied 5th Market's Motion to Amend. JA55.

F. The Board's Decision Granting-in-Part 5th Market's Request for Rehearing

5th Market filed a Request for Rehearing seeking reconsideration of the Board's Final Written Decision. JA593-609. 5th Market argued that the Board should confirm proposed substitute claim 54 because the claim allegedly overcomes the Board's § 112, ¶ 2, rejection and because the Board did not reject the original claim on which claim 54 is based (claim 5) over the prior art. JA596-99.

The Board agreed, and confirmed the patentability of substitute claim 54. JA73. The Board reasoned that claim 54 only narrows claim 5, so 5th Market did not need to satisfy the requirement in *Idle Free* of showing the patentability of claim 54 over the prior art in general (including prior art cited in the Petition and prior art known to 5th Market). JA65. The Board therefore declined to assess the patentability of new claim 54 over the prior art known to 5th Market and, moreover,

⁵ The Board also noted that its rules prohibit 5th Market's attempt to incorporate arguments from its Patent Owner Response into its Motion to Amend, and thus declined to consider these arguments. JA55.

declined to assess the patentability of claim 54 over the prior art combinations that had been cited in CME's Petition but not instituted. *Id.* For example, the Board did not address whether claim 54 was patentable over the combination of the CFTC reference, Miller, and Wilson, which CME argued in its Petition rendered original claim 5 obvious but on which the Board did not institute review. JA224-25. The Board thus excused 5th Market's failure in its Motion to Amend to offer any explanation as to how claim 54 is patentable over the prior art of record in the trial or other prior art known to 5th Market.

The Board's only basis for not requiring 5th Market to show that claim 54 is patentable over the prior art is that claim 54 allegedly narrows the scope of original claim 5 to address a § 112 issue. JA63-65. Substitute claim 54 differs from claim 5 in that the claimed computer system only needs an algorithm that performs the function of "matching" instead of one that performs both the functions of "matching or comparing." JA437-38. The Board rejected CME's argument that 5th Market impermissibly broadened the scope of claim 5 by requiring the computer means to perform only one function instead of two. JA66-67.

IV. SUMMARY OF THE ARGUMENT

1. 5th Market forfeited its "printed publication" argument by failing to raise it before the Board. In its Opening Brief, 5th Market argues for the first time in this case that the CFTC reference is not a printed publication prior art reference.

5th Market forfeited this argument by failing to raise it before the Board. Indeed, rather than challenge whether the CFTC reference is a printed publication prior art reference, 5th Market responded substantively to CME's validity arguments based on the CFTC reference. 5th Market's acknowledgement that the CFTC reference is prior art in this case is consistent with its treatment of the reference in other USPTO proceedings involving the '419 patent, where 5th Market similarly never questioned whether the CFTC reference is prior art.

5th Market has not alleged any exceptional circumstances, such as new facts or a change in the law, that might justify its failure to raise its "printed publication" argument before the Board. This Court should therefore reject 5th Market's improper attempt to raise this issue for the first time on appeal.

Even if the Court were to consider 5th Market's forfeited argument regarding the CFTC publication, it should reject 5th Market's argument and affirm the Board's decision canceling the '419 patent claims. CME's Petition cited the CFTC reference as prior art, noted its December 7, 1992 publication date, and filed a copy of the reference as an exhibit. The front page of the CFTC reference bears two date markings evidencing the fact that it was publicly available in December 1992, nearly seven years before the '419 patent's filing date. Moreover, in another CBM proceeding involving the '387 patent, a continuation-in-part of the '419 patent, the

Board considered 5th Market's "printed publication" argument regarding the CFTC reference and found it to be meritless.

Based on the foregoing, the Board properly relied on the CFTC reference as a prior art printed publication in canceling the '419 patent claims. 5th Market's brief makes no other arguments on the substantive aspects of the Board's cancelation of claims under §§ 103 and 112, and the Board's decision canceling the '419 patent claims should therefore be affirmed.

2. The Board erred by confirming new claim 54 without assessing its patentability over the prior art in general, or even all the prior art of record, as required by the Board's own regulations in 37 C.F.R. §§ 42.221 and 42.20(c), as interpreted in the Board's *Idle Free* and *MasterImage 3D* decisions. The Board departed from these regulations and decisions by excusing 5th Market's failure to establish the patentability of claim 54 over three categories of prior art the Board considers to be of record: (1) material art of record in the current proceeding, including art asserted in grounds on which the Board did not institute review; (2) material art of record in any other USPTO proceeding involving the '419 patent; and (3) material art of record in the '419 patent prosecution history.

The Board explained that it departed from its past decisions because claim 54 was amended only to fix a § 112 problem rather than a § 102 or § 103 issue. This distinction, however, does not justify the Board's decision not to

analyze the patentability of claim 54 over all prior art of record. Any substitute claim confirmed in a post-grant proceeding is added to the patent without further examination, and thus the requirement for the patent owner to prove patentability over the prior art of record serves to uphold the intent of the post-grant review regime by preventing invalid substitute claims from issuing.

Here, the Board failed to consider prior art references of record that disclose the “yield spread” limitation that led the Board to confirm claim 54. The Board’s failure to analyze whether claim 54 is patentable over all of the prior art of record thus will result in the claim issuing even though the USPTO has before it prior art that undermines that claim’s patentability. The Board’s decision to confirm claim 54 should be reversed because it violates the Board’s own regulations and decisions, and is inconsistent with the governing statute.

The Board further erred by confirming claim 54 because it impermissibly broadens the scope of the claims. Original claim 5 of the ’419 patent includes the limitation from claim 1 of a “controller computer comprising . . . means for *matching or comparing*” (emphasis added). The controller computer thus must be able to operate in either of two separate modes: one in which the computer matches and another in which it compares. For the computer to be able to operate in either of two modes, it must be able to perform both the matching and comparing functions. This is consistent with 5th Market’s argument in its Preliminary

Response that this claim limitation should be construed as “a computer that matches *and* compares trade data.” JA257 (emphasis added).

The only difference in proposed substitute claim 54 is that it deletes the “or comparing” limitation of claim 5. Claim 54 thus does not need to operate in either of two separate modes, as was required in claim 5. The Board erred by concluding that deleting the “or comparing” limitation narrowed the claim. The Board’s decision confirming claim 54 should be reversed because 5th Market improperly broadened the claim in violation of 35 U.S.C. § 326(d)(3).

V. LEGAL STANDARDS

A. Forfeiture of Arguments Not Presented Before the Board

Barring exceptional circumstances, a party may not raise arguments for the first time on appeal that were not presented to the Board. *See, e.g., In re Watts*, 354 F.3d 1362, 1367 (Fed. Cir. 2004) (“[I]t is important that the applicant challenging a decision not be permitted to raise arguments on appeal that were not presented to the Board.”); *see also In re DBC*, 545 F.3d 1373, 1380 (Fed. Cir. 2008) (“We decline [patent owner’s] invitation to consider a challenge it failed to timely raise, as we do not view the circumstances of this case to warrant such an exceptional measure. Primarily, we reemphasize that while this issue could have been raised before the Board, it was not.”).

The purpose of this rule is to conserve administrative and judicial resources by ensuring the Board has had a full opportunity to consider and adjudicate arguments before they are presented on appeal. *See, e.g., In re Watts*, 354 F.3d at 1368 (“Because the appellant failed to argue his current interpretation of the prior art below, we do not have the benefit of the Board’s informed judgment on this issue for our review.”).

A patent owner’s mere failure to appreciate an argument earlier is insufficient reason for the Court to consider the argument for the first time on appeal. *In re DBC*, 545 F.3d at 1380 (“We are not persuaded to overlook [patent owner’s] lack of diligence to present an issue of which it was, or should have been, aware.”). This Court therefore rejects attempts to raise new issues for the first time on appeal. *See, e.g., In re Alonso*, 545 F.3d 1015, 1022 (Fed. Cir. 2008) (“Accordingly, we will not consider this newly minted argument on appeal.”).

B. Standards Relating to Amending Claims

An amended claim may not enlarge the scope of the patent claims. 35 U.S.C. § 326(d)(3); *see also* 37 C.F.R. § 42.221(a)(2)(ii). Accordingly, a proposed amended claim that enlarges the scope of the patent claim it replaces is not patentable. *See, e.g., Idle Free*, 2013 WL 5947697, at *3 (“A patent owner may not seek to broaden a challenged claim in any respect, in the name of responding to an alleged ground of unpatentability. A proper substitute claim under 37 C.F.R.

§ 42.121(a)(2)(i) must only narrow the scope of the challenged claim it replaces. Similarly, under 37 C.F.R. § 42.121(a)(2)(ii), a substitute claim may not enlarge the scope of the challenged claim it replaces by eliminating any feature.”).

The patent owner bears the burden of establishing patentability of any proposed substitute claims over the “prior art of record.” *See Microsoft v. Proxyconn*, 789 F.3d at 1307. In *Microsoft v. Proxyconn*, this Court held that the Board “has reasonably interpreted these provisions [37 C.F.R. § 42.20(c); 35 U.S.C. §§ 316(a)(9), 318(b)] as requiring the patentee to show that its substitute claims are patentable over the prior art of record.” *Id.*; *see also Idle Free*, 2013 WL 5947697, at *4 (“The burden is not on the petitioner to show unpatentability, but on the patent owner to show patentable distinction over the prior art of record and also prior art known to the patent owner.”).

The Board held that “prior art of record” includes: (1) “any material art of record in the current proceeding, including art asserted in grounds on which the Board did not institute review”; (2) “any material art of record in any other proceeding before the [USPTO] involving the patent”; and (3) “any material art in the prosecution history of the patent.” *MasterImage 3D, Inc. v. RealD Inc.*, IPR2015-00040, 2015 WL 4383224 (PTAB July 15, 2015).

This Court reviews the Board’s legal determinations de novo and its factual findings for substantial evidence. *Microsoft v. Proxyconn*, 789 F.3d at 1297 (citing *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000)).

The Board has authority under 35 U.S.C. § 326(a)(9) to set forth standards and procedures for motions to amend in post-grant review proceedings, including CBM reviews. This Court “accept[s] the Board’s interpretation of Patent and Trademark Office regulations unless that interpretation is ‘plainly erroneous or inconsistent with the regulation.’” *Microsoft v. Proxyconn*, 789 F.3d at 1306 (quoting *In re Sullivan*, 362 F.3d 1324, 1326 (Fed. Cir. 2004)); *see also Auer v. Robbins*, 519 U.S. 452, 461-62 (1997).

VI. ARGUMENT

A. The Court Should Not Consider 5th Market’s Forfeited Argument Regarding Whether the CFTC Reference Is a Printed Publication

1. 5th Market Forfeited Any “Printed Publication” Argument by Failing To Present It Before the Board

For the first time in this case, 5th Market argues in its Opening Brief that CME failed to establish that the CFTC reference is a “printed publication,” and thus contends that the CFTC reference should not have been considered by the Board as prior art. 5th Market Br. 5-6. In fact, 5th Market’s Opening Brief does not dispute or substantively address the merits of the Board’s rejection of the original claims. In its Opening Brief, for example, 5th Market states that “[t]his appeal is based on Petitioner, CME’s, failure to prove [the CFTC reference] as a ‘printed

publication’ prior art reference,” and admits that “the teachings of the CFTC document are not the subject of this Appeal.” *Id.* at 3.

5th Market did not raise the “printed publication” issue before the Board at any time in this proceeding. To the contrary, in all of its filings, 5th Market responded substantively to CME’s validity arguments based on the CFTC reference without disputing the reference’s status as prior art to the ’419 patent. In 5th Market’s Preliminary Response, for example, it stated that “the ’419 patent claims recite meaningful features that distinguish over *prior art electronic trading platforms* and networks—including the CFTC reference.” JA278 (emphasis added). Similarly, counsel for 5th Market admitted during a hearing that the CFTC reference disclosed a trading system in 1992, only arguing that it did not disclose the “external price feed” limitation. JA560[32:22-24]. Rather than raise any argument before the Board about the CFTC reference not being a “printed publication,” 5th Market admitted that it is prior art. 5th Market merely argued that the USPTO had already applied the CFTC reference as prior art during reexamination. *See* JA284-85.

5th Market’s admission that the CFTC reference is a prior art publication in this proceeding is consistent with its position in other matters before the USPTO involving the ’419 patent. During the two *ex parte* reexaminations, for example, 5th Market addressed the merits of the validity rejections based on the CFTC

reference but never disputed the reference's status as a prior art publication. *See, e.g.*, JA1437 (“[T]he cited portion of CFTC does not support the notion that the NYMEX ACCESS supports receiving an ‘external price feed . . .’”). Indeed, 5th Market's expert during reexamination, Dr. Rickard, stated in his declaration that he had reviewed “certain prior art relied on in the Examiner's Office Action,” including the CFTC reference. JA1460, ¶ 4.

While the '419 patent CBM review was pending before the Board, 5th Market raised the “printed publication” argument with respect to the CFTC reference in a copending CBM proceeding for the related '387 patent. *Chi. Mercantile Exch., Inc. v. 5th Mkt., Inc.*, CBM2014-00114, Paper 19, at 43-44 (PTAB Dec. 16, 2014).⁶ Thus, 5th Market was aware of the argument while this case was still pending at the Board.

Although 5th Market could have argued about whether the CFTC reference is a “printed publication” anytime during the '419 CBM proceeding (or during the previous reexaminations), it did not. 5th Market has not alleged any exceptional circumstances, such as new facts or a change in the law, that might justify its

⁶ CME asks the Court to take judicial notice of 5th Market's filings in the USPTO in which it discussed the CFTC reference, including in CBM proceedings involving the '387 patent. Taking judicial notice of these documents is appropriate because they are public records that “can be accurately and readily determined from sources whose accuracy cannot reasonably be questioned.” Fed. R. Evid. 201(b)(2); *see also VirtualAgility Inc. v. Salesforce.com, Inc.*, 759 F.3d 1307, 1312-13 (Fed. Cir. 2014) (citing *Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 497 n.1 (Fed. Cir. 1997)).

failure to raise this argument before the Board. Accordingly, the Court should reject 5th Market's belated attempt to raise this issue for the first time on appeal.⁷ *See, e.g., In re Watts*, 354 F.3d at 1367.

2. Even If the Court Were To Consider 5th Market's Forfeited Argument, It Should Affirm the Board's Decision

Even if the Court were to consider 5th Market's new "printed publication" argument, it should hold that the Board correctly determined that the CFTC reference is a "printed publication" and thus constitutes prior art under § 102. In its Petition, CME cited the CFTC reference as prior art, noted its publication date of December 7, 1992, and filed a copy of the document as an exhibit. JA153; JA1715-816. The front page of the CFTC reference includes two markings that show the document was publicly available. The first marking reads "PUBLIC COPY" and the date "December 7, 1992." JA1715. The document also bears a separate stamp that reads "COMMODITY FUTURES TRADING COMMISSION RECEIVED FOR PUBLIC RECORD" and the date "Dec 18 320 PM '92." *Id.* This is sufficient to meet CME's burden of establishing that the CFTC reference is a printed

⁷ Although 5th Market states that it "does not challenge the institution of this CBM," 5th Market Br. 12 (emphasis in original), its argument on appeal is in fact no more than a challenge to the Board's decision to institute CBM review based on the CFTC reference. This challenge is prohibited by statute. *See* 35 U.S.C. § 324(e) ("The determination by the Director whether to institute a post-grant review under this section shall be final and nonappealable.").

publication within the meaning of § 102. The Board thus properly applied the CFTC reference as prior art under § 18 of the Leahy-Smith America Invents Act.

In addition, the Board considered 5th Market's "printed publication" argument regarding the CFTC reference in another CBM proceeding, in which CME's Petition made the same showing as the Petition here, and the Board found the argument to be without merit. In the '387 patent CBM, the Board stated it was "not persuaded by 5th Market's arguments that CME fails to meet its burden of establishing that CFTC qualifies as a prior art printed publication." *Chi. Mercantile Exch., Inc. v. 5th Mkt., Inc.*, CBM2014-00114, 2015 WL 4976739, at *11 (PTAB Aug. 18, 2015). The Board found sufficient evidence in the record showing that the CFTC reference is a printed publication within the meaning of § 102(b). *Id.* The Board expressly noted that the same CFTC reference has been applied as prior art in the two reexamination proceedings involving the '419 patent and in the CBM review at issue in this appeal. *Id.* The Board further noted that 5th Market failed during those proceedings to dispute the fact that the CFTC reference qualifies as a prior art printed publication. *Id.* Indeed, the Board stated it was "unclear . . . why such arguments were not brought in the prior proceedings before the [USPTO]." *Id.*

During CBM2014-00114, the Board also noted that, in addition to CME's Petition and exhibits, 5th Market itself submitted evidence that supports CME's

position that the CFTC reference is a prior art printed publication. *Id.* at *12. In particular, the Board noted a declaration filed by 5th Market from Mr. Wheeler, a paralegal specialist at the U.S. Commodity Futures Trading Commission, whose duties include “maintaining and researching records of the CFTC maintained by the Office of Secretariat, including in connection with the maintenance and indexing of public documents filed with the CFTC.” *Id.* (citation omitted). The Board noted that Mr. Wheeler’s declaration included Exhibit A-3, a certified copy of the CFTC reference, dated December 7, 1992, and marked “PUBLIC COPY.” *Id.* (citation omitted). As the Board recounted, Mr. Wheeler further testified that, as part of the Commission’s ordinary course of business and record keeping, Exhibit A-3 was made publicly available on December 18, 1992, or within a few days thereafter.⁸ *Id.* This date is nearly seven years before the ’419 patent’s filing date. The Board also noted testimony by CME’s expert, Dr. Pirrong, that Exhibit A-3 to the Wheeler Declaration is “substantively identical” to the copy of the CFTC reference that CME submitted with its CBM Petition. *Id.* (citation omitted).

The Board in the CBM review of the ’387 patent concluded that this evidence confirmed that the CFTC reference “was made sufficiently accessible to the public interested in the art at or around December 18, 1992.” *Id.* at *13.

⁸ 5th Market’s Opening Brief in this appeal neglects to mention the Wheeler Declaration or the Board’s rejection of 5th Market’s “printed publication” arguments in CBM2014-00114.

Accordingly, the Board concluded in that CBM review that the CFTC reference is a printed publication under § 102(b). *Id.*

Based on the foregoing, even if the Court decides to consider 5th Market's forfeited "printed publication" argument, it should hold that the Board correctly determined that CME met its burden to establish that the CFTC reference is a prior art printed publication. The Court should thus affirm the Board's rejection of the '419 patent claims as obvious over the prior art, including the CFTC reference.

B. The Board Erred by Confirming Substitute Claim 54

1. The Board Failed to Assess the Patentability of Claim 54 over the Prior Art of Record or the Prior Art in General

In its Final Written Decision, the Board stated that 5th Market, in its Motion to Amend, "bears the burden of proof in demonstrating the patentability of proposed substitute claims 50-72 over the prior art of record, as well as the prior art in general." JA52-53 (citing *Idle Free*, 2013 WL 5947697, at *4). After the Board issued its decision in *Idle Free*, this Court confirmed that a patentee bears the burden of establishing that any proposed substitute claims are patentable over the prior art of record. *Microsoft v. Proxyconn*, 789 F.3d at 1307. 5th Market's Motion to Amend, however, did not address the patentability of proposed substitute claim 54 over the prior art, and the Board failed to assess whether claim 54 is patentable over *either* the prior art in general *or* all of the prior art of record. JA65.

The Board’s basis on rehearing for rejecting its own guidance from *Idle Free* was its incorrect determination that 5th Market’s substitute claim 54 “only narrows the scope of challenged dependent claim 5 to overcome an indefiniteness problem.” *Id.* The Board reasoned that, when a patent owner amends a claim to cure an indefiniteness problem *only*, the patent owner does not need to show patentability of the proposed substitute claim over the prior art. *Id.* The Board thus held that 5th Market did not need to do anything to “demonstrate patentability over the prior art, in general.” *Id.* As a result, the Board excused 5th Market’s failure to distinguish claim 54 over three categories of art the Board has defined as *prior art of record*: (1) prior art cited in the Petition but not instituted; (2) material prior art of record in the prosecution of the ’419 patent; or (3) material prior art of record in other proceedings involving the ’419 patent, including two *ex parte* reexaminations.

a. The Board’s Rehearing Decision Violates Its Own Interpretation of the Governing Regulations

The Board’s analysis on rehearing violates its own regulations in 37 C.F.R. §§ 42.221 and 42.20(c), as interpreted by the Board itself in *Idle Free* and *MasterImage 3D*.⁹ The Board’s interpretation of these regulations requires 5th Market to establish the patentability of proposed substitute claim 54 over “the

⁹ The Board in *Idle Free* analyzed 37 C.F.R. § 42.121, which applies to *inter partes* reviews. The text of the relevant regulation covering CBM post-grant reviews, 37 C.F.R. § 42.221, is identical to that of 37 C.F.R. § 42.121.

prior art of record and also prior art known to the patent owner.” *Idle Free*, 2013 WL 5947697, at *4. The Board confirmed claim 54 despite recognizing that 5th Market failed to do so.

Neither the Board’s regulations nor its interpretations of its regulations in *Idle Free* and *MasterImage 3D* provide any basis for neglecting to analyze patentability over the prior art simply because the Board rejected original claim 5 under § 112 rather than under § 102 or § 103. To the contrary, the Board’s Final Written Decision in *Idle Free* explains that it is insufficient merely to demonstrate patentability by distinguishing proposed substitute claims over the prior art applied to the original claims because “the proposed substitute claims will be added directly to the patent, without examination.” *Idle Free Sys., Inc. v. Bergstrom, Inc.*, IPR2012-00027, 2014 WL 824156, at *19 (PTAB Jan. 7, 2014).

As this Court stated in *Microsoft v. Proxyconn*:

During IPRs, once the PTO grants a patentee’s motion to amend, the substituted claims are not subject to further examination. Moreover, the petitioner may choose not to challenge the patentability of substitute claims if, for example, the amendments narrowed the claims such that the petitioner no longer faces a risk of infringement. ***If the patentee were not required to establish patentability of substitute claims over the prior art of record, an amended patent could issue despite the PTO having before it prior art that undermines patentability.*** Such a result would defeat Congress’s purpose in creating IPR as part of “a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs.”

789 F.3d at 1307-08 (emphasis added) (quoting H.R. Rep. No. 112-98, pt. 1, at 40 (2011), *as reprinted in* 2011 U.S.C.C.A.N. 67, 69).

This reasoning applies with equal force to claims amended solely to overcome an indefiniteness rejection. Just as the patent owner bears the burden of proving that a claim rejected under § 103 is patentable over the prior art, the patent owner also bears the burden to prove that a claim rejected under § 112 is patentable over the same prior art. Absent this requirement, a patent claim amended to overcome a § 112 problem could issue even though the Board has before it art that undermines that claim's patentability.

The Board erred by confirming claim 54 despite 5th Market's failure to identify *any* prior art or explain how proposed claim 54 overcomes any prior art. *See* JA445-46. As CME noted in its Opposition to 5th Market's Motion to Amend, the Board should have denied 5th Market's Motion to Amend because 5th Market failed to meet its burden under 37 C.F.R. § 42.20(c) to show how its proposed substitute claim is patentable over the prior art. JA460-62. This is true regardless of whether this regulation requires showing patentability over the "prior art in general" or only the "prior art of record." The Court should therefore reverse the Board's decision confirming claim 54 based on 5th Market's failure to comply with the Board's regulations governing motions to amend. In the alternative, the Court should vacate the Board's Rehearing Decision and remand for the Board to assess

the patentability of claim 54 over the prior art of record and prior art in general, consistent with the Board's regulations and informative decisions.

In a representative decision on motions to amend, the Board defined "prior art of record" to include: (1) "any material art of record in the current proceeding, including art asserted in grounds on which the Board did not institute review"; (2) "any material art of record in any other proceeding before the [USPTO] involving the patent"; and (3) "any material art in the prosecution history of the patent." *MasterImage 3D*, 2015 WL 4383224. The Board further endorsed this definition of "prior art of record" in its August 20, 2015 proposed rule. *See* Amendments to the Rules of Practice for Trials Before the Patent Trial and Appeal Board, 80 Fed. Reg. 50,720, 50,723 (Aug. 20, 2015). The Board stated that *MasterImage 3D* "clarifies that a patent owner must argue for the patentability of the proposed substitute claims over the prior art of record, including any art provided in light of a patent owner's duty of candor, and any other prior art or arguments supplied by the petitioner." *Id.* at 50,722.

The Board, however, failed to assess the patentability of claim 54 against all three categories of prior art of record identified in *MasterImage 3D*. As to the first category, the Board failed to assess the patentability of new claim 54 over the Dictionary of Finance prior art reference, which teaches the "yield spread" limitation that led the Board to confirm claim 54. *Dictionary of Finance and*

Investment Terms 665 (John Downs & Jordan Elliot Goodman eds. 1995) (“Dictionary of Finance”), JA2221. The Dictionary of Finance defines a “yield spread” as the “difference in YIELD between various issues of securities.” *Id.* The Board instituted review and canceled two original claims based on a combination of the CFTC reference, Lupien, and the Dictionary of Finance. JA44. The Board also failed to analyze prior art combinations identified in CME’s Petition but that were not instituted. *See* JA65. The Board, for example, did not address whether claim 54 was patentable over the combination of the CFTC reference, Miller, and Wilson, which CME argued in its Petition rendered original claim 5 obvious. *See* JA118.

The Board thus failed even to consider every prior art reference of record in this trial. In *Microsoft v. Proxyconn*, this Court affirmed the Board’s decision requiring a patent owner to establish the patentability of proposed substitute claims over prior art cited in the petition but not instituted as to those claims. 789 F.3d at 1306, 1307 & n.4. The Board erred by failing to apply the same standard here to require 5th Market to show claim 54 is patentable over the combination of the CFTC reference, Miller, and Wilson.

The Board also failed to assess the patentability of claim 54 over the other two categories of “prior art of record”—material prior art of record in the *ex parte* reexamination proceedings or in the ’419 patent prosecution history. This is

important with respect to substitute claim 54 because prior art of record in both the *ex parte* reexaminations of the '419 patent and the original prosecution discloses the “yield spread” limitation that was the Board’s basis for confirming claim 54.

For example, the '419 patent file history shows that yield spreads were both well known in the art at the time the '419 patent was filed and were also disclosed in prior art references of record during prosecution. For example, the examiner’s prior art search during the '419 patent prosecution identified a 1998 Journal of Finance article titled “The Relation Between Treasury Yields and Corporate Bond Yield Spreads.” '419 Patent Prosecution History, Examiner’s Search Strategy and Results, at 42 (Sept. 18, 2000). In addition, the examiner took “Official Notice” that “the possible dependency of the price on one or more of several factors (such as current value, a volatility, a yield, or a yield spread) is old and well known in the art.” '419 Patent Prosecution History, Non-Final Office Action, at 8 (Oct. 24, 2000). The examiner in a subsequent office action again took “Official Notice” that it was well known in the art that a price may be a yield spread. '419 Patent Prosecution History, Non-Final Office Action, at 10-11 (Mar. 29, 2001). Here, the Board failed to consider these facts when it confirmed claim 54.

Similarly, at least two references teaching the “yield spread” limitation were of record during the reexaminations. The Daigler reference discloses trading securities options “at a specified yield spread.” Robert T. Daigler, *Advanced*

Options Trading: The Analysis and Evaluation of Trading Strategies, Hedging Tactics & Pricing Models 290 (1994) (“Daigler”).¹⁰ The USPTO also applied the Dictionary of Finance during reexamination and explained that “yield spread” is one of several basic terms known to the financial industry that was disclosed in the prior art during the original prosecution of the ’419 patent. *See* JA987 (“[T]hese terms known to the financial industry do not provide features deemed missing from the prior art in the original examination.”).

The Board violated its own regulations, as interpreted in *Idle Free* and *MasterImage 3D*, by failing to assess patentability of claim 54 over the prior art of record, much less the prior art in general. The Court should therefore reverse the Board’s decision confirming claim 54. Alternatively, the Court should vacate the Board’s Rehearing Decision and remand for the Board to consider whether claim 54 is patentable over the prior art references that teach trading on yield spreads, including those of record in the reexaminations and in the original prosecution.

b. The Board’s New Rule in Its Rehearing Decision Is Inconsistent with the Board’s Regulations and the Governing Statutes

The new rule the Board establishes in its Rehearing Decision is inconsistent with the USPTO’s regulations in 37 C.F.R. §§ 42.20(c) and 42.221, and also with

¹⁰ CME asks the Court to take judicial notice of the Daigler reference, which was of record in the ’419 patent reexaminations (JA1308), and therefore “can be accurately and readily determined from sources whose accuracy cannot reasonably be questioned.” Fed. R. Evid. 201(b)(2).

35 U.S.C. § 328(a). The USPTO's regulation in § 42.20(c) requires the patent owner to "establish that it is entitled to the requested relief," which here requires 5th Market to prove it is entitled to its proposed substitute claims. In turn, 35 U.S.C. § 328(a) states that the Board "shall issue a final written decision with respect to the patentability of any patent claim challenged by the petitioner and any new claim added under section 326 (d)." As the Board itself has held, these provisions require a patent owner to prove that any proposed substitute claims are patentable at least over the prior art of record. Neither the statute nor the regulations provide an exception to this rule for the situation where an original claim was canceled only under § 112 and not under § 102 or § 103.

In *Microsoft v. Proxyconn*, this Court explained that interpreting the statute and regulations *not to require* a patent owner to prove the patentability of all substitute claims over the prior art "would defeat Congress's purpose in creating IPR as part of 'a more efficient and streamlined patent system that will improve patent quality and limit unnecessary and counterproductive litigation costs.'" 789 F.3d at 1307-08 (quoting H.R. Rep. No. 112-98, pt. 1, at 40, *as reprinted in* 2011 U.S.C.C.A.N. at 69). The Board's Rehearing Decision does precisely that. By confirming a proposed substitute claim without assessing it against the prior art of record, simply because the original claim was rejected under § 112 instead of some other provision, the Board's decision conflicts with the purpose of *inter partes* and

CBM review and the relevant statutes and regulations. The Court should therefore reverse the Board's erroneous decision. *See Auer*, 519 U.S. at 461-62.

2. The Board Erred by Confirming Substitute Claim 54 Because It Impermissibly Broadens the Scope of the Claims

Original claim 5 includes the limitation from claim 1 of a “controller computer comprising . . . means for *matching or comparing*, in accordance with the constraints and the conditions, algorithmic buy/sell orders with algorithmic or non-algorithmic sell/buy orders through use of multiple data sources.” JA147[1:57-61, 2:3-4] (emphasis added). The controller computer thus must be able to perform the function of “matching or comparing,” which requires that the computer be able either to match or to compare. In order for the controller computer to be able to perform either matching or comparing, it must be able to perform *both* functions. *See* JA454. In terms of system architecture, one can think of this as a decision tree—in order for the system to pick among two branches of the tree (either “matching” or “comparing”), it must be able to do both.

New claim 54 differs from original claim 5 in that the controller computer must only be able to perform the function of “matching.” It does not need to operate in either of two separate modes, as was required by the original claim limitation. The Board concluded that this was a narrowing amendment because 5th Market deleted one portion of the means-plus-function language present in claim 5. JA66. Yet because substitute claim 54 actually requires less functionality

for the controller computer, it requires less algorithm support for the claimed means and is thus broader than claim 5. Indeed, *deleting* claim limitations typically results in a broader claim rather than a narrower one.

This interpretation is consistent with 5th Market's argument that the Board should construe the "means for matching and comparing [sic]" as "a computer that matches *and* compares trade data." JA257 (emphasis added). Accordingly, 5th Market also interpreted the "means for matching or comparing" term as requiring a system able to perform both the matching and comparing functions.

The Board erred by confirming substitute claim 54 because, by eliminating the "means for comparing" limitation, it broadens the scope of original claim 5, which claim 54 replaces. This is impermissible under 35 U.S.C. § 326(d)(3). As the Board has explained, "a substitute claim may not enlarge the scope of the challenged claim it replaces by eliminating any feature." *Idle Free*, 2013 WL 5947697, at *3. The Court should therefore reverse the Board's Rehearing Decision and reject substitute claim 54.

VII. CONCLUSION

For these reasons, the Court should reject 5th Market's improper attempt to raise the "printed publication" argument for the first time on appeal, affirm the Board's holding that claims 1-23 and 41-49 of the '419 patent are invalid, and

affirm the Board's decision denying 5th Market's motion to amend as to proposed amended claims 50-53 and 55-72.

On CME's cross-appeal, the Court should reverse the Board's decision confirming the patentability of proposed amended claim 54 because the Board failed to assess the patentability of claim 54 over the prior art of record and because claim 54 impermissibly broadens the scope of the claims.

Date: November 9, 2015

Respectfully submitted,

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CERTIFICATE OF SERVICE

I certify that the foregoing BRIEF FOR CROSS-APPELLANT CHICAGO MERCANTILE EXCHANGE, INC., was filed electronically using the CM/ECF system and served upon registered counsel by operation of the Court's CM/ECF system on November 9, 2015.

/s/Donna Stockton
Donna Stockton

CERTIFICATE OF COMPLIANCE

I certify that this BRIEF FOR CROSS-APPELLANT CHICAGO MERCANTILE EXCHANGE, INC., contains 11,963 words as measured by the word-processing software used to prepare this brief.

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